

WHAT IS CLAIMED IS:

1. A method for cleaning a membrane filtration module, the module comprising at least one membrane located in a feed-containing vessel, the membrane comprising a permeable wall, the method comprising:

- a) conducting a filtration operation wherein a feed containing a contaminant is applied to a first side of the permeable wall and a filtrate is withdrawn from a second side of the permeable wall;
- b) suspending the filtration operation;
- c) performing a cleaning process on the permeable wall to dislodge a contaminant therefrom into a liquid surrounding the membrane;
- d) performing a high velocity sweep of the feed-containing vessel to remove the liquid containing the dislodged contaminant; and
- e) recommencing the filtration operation.

2. The method according to claim 1, wherein step c) comprises performing a fluid backwash of the permeable wall to dislodge a contaminant therefrom into a liquid surrounding the membrane.

3. The method according to claim 2, wherein the fluid backwash comprises a liquid backwash.

4. The method according to claim 2, wherein the fluid backwash comprises a gas backwash.

5. The method according to claim 1, wherein a velocity of the high velocity sweep is greater than about 0.03 m/sec.

6. The method according to claim 1, wherein a velocity of the high velocity sweep is from about 0.3 m/sec to about 2.0 m/sec.

7. The method according to claim 1, wherein step c) comprises gas scrubbing a surface of the permeable wall.

8. The method according to claim 1, wherein the high velocity sweep of the feed-containing vessel is performed periodically in different directions within the vessel.

9. The method according to claim 1, wherein the membrane comprises a hollow fiber membrane, and wherein the filtrate is withdrawn from at least one end of the hollow fiber membrane during the filtration operation.

10. The method according to claim 1, wherein step d) comprises:

f) forming a gas-containing region within the feed-containing vessel;

g) sealing the feed-containing vessel;

h) applying a pressure to a gas within the gas-containing region to pressurize the gas; and

i) releasing the pressure by opening the feed-containing vessel to atmosphere, whereby the pressurized gas expands and produces a high velocity sweep of the feed-containing vessel.

11. The method according to claim 1, wherein step d) comprises:

f) providing a gas-containing region within a further vessel coupled to the feed-containing vessel;

g) sealing the feed-containing vessel and the further vessel as a whole;

h) applying a pressure to a gas within the gas-containing region to pressurize the gas; and

i) releasing the pressure by opening the feed-containing vessel to atmosphere, whereby the pressurized gas expands and produces a high velocity sweep of the feed-containing vessel.

12. The method according to claim 10, wherein the gas-containing region is formed by partially draining down a feed liquid within the feed-containing vessel.

13. The method according to claim 10, wherein step i) comprises applying a fluid backwash to the membrane.

14. The method according to claim 1, wherein the high velocity sweep is produced by applying a source of a pressurized gas to a liquid within the feed-containing vessel.

15. The method according to claim 1, further comprising:

i) providing a further vessel coupled to the feed-containing vessel, wherein a high velocity sweep is produced by applying a source of pressurized gas to the further vessel.

16. The method according to claim 1, wherein the high velocity sweep is produced by pumping a liquid to or from the feed-containing vessel.

17. A method of cleaning a membrane filtration module, the module comprising at least one elongate membrane positioned in a feed-containing vessel, the membrane having a permeable wall, the method comprising:

a) subjecting the permeable wall to a filtration operation wherein a feed containing a contaminant is applied to a first side of the permeable wall, and filtrate is withdrawn from a second side of the permeable wall;

b) suspending the filtration operation; and

c) dislodging the contaminant from the permeable wall into a liquid surrounding the membrane by flowing gas bubbles along the first side of the membrane wall, wherein the gas bubbles are formed by feeding a gas into the feed-containing vessel through an opening in the feed-containing vessel.

18. A method according to claim 17, wherein the opening is positioned laterally of the membrane.

19. A method according to claim 17, wherein the opening provides a feed inlet to the feed-containing vessel during the filtration operation.

20. A method according to claim 17, wherein the gas is fed under pressure into the feed-containing vessel.

21. A method according to claim 17, wherein step c) comprises dislodging a contaminant from the permeable wall into a liquid surrounding the membrane by flowing gas bubbles along the first side of the permeable wall, wherein the gas bubbles are formed by feeding a gas into the feed-containing vessel through an opening in the vessel.

22. A method according to claim 21, wherein the opening is positioned laterally of the membrane.

23. A method according to claim 21, wherein the opening provides a feed inlet to the feed-containing vessel during the filtration operation.

24. A method according to claim 21, wherein the gas is fed under pressure into the feed-containing vessel.